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PATENT SPECIFICATION



Application Date: Sept. 30, 1932. No. 27,223/32.

412,910

Complete not Accepted.

COMPLETE SPECIFICATION.

Improvements in Cigarette Rod Making Machines.

"UNIVERSELLE" CIGARETTEN-MASCHINEN-FABRIK J. C. MÜLLER & Co., of Zwickauer Strasse 48—58, Dresden A. 24, Germany, a Kommandit Gesellschaft of Germany, the personally responsible partner being JOHANN CARL MÜLLER, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

In cigarette rod making machines, the tobacco which comes from the spreader as a rule enters a tobacco channel, in which it is fed to the so-called forming device for enveloping the tobacco rod in the paper strip. In the known devices for receiving and guiding the tobacco the arrangement is either such that the tobacco channel for receiving the tobacco from the spreader is constituted by three guide bands, two of which constitute the lateral walls of the channel and the third the bottom, or only a single band is employed, which is caused to take a U-shape form by suitable guides. In both cases it is necessary to provide what is known as a bridge, that is to say a stationary guiding device, for transferring the tobacco from the tobacco channel to the paper strip. The provision of such a bridge, however, leads to considerable difficulties, more particularly because the contact of the tobacco with the stationary guiding surfaces causes an unwanted displacement of the tobacco, consequently impairing the evenness of the tobacco rod. Furthermore, when a bridge is provided, it is necessary to compress the tobacco relatively strongly, so that it will be drawn over the bridge in as compact a form as is possible, and this may result in the disadvantage that the tobacco filling the cigarettes is too compact. Finally, by the provision of the bridge, there is the disadvantage that loss of tobacco at the point of transition from the band to the bridge is unavoidable,

[Price 1/-]

because particularly short tobacco fibres can easily pass through the gap between the band and bridge and be lost.

Attempts have already been made to obviate the difficulties deferred to in the foregoing by bringing the tobacco coming from the tobacco spreader immediately upon the paper strip. In the known constructions of this kind, the paper strip accordingly forms the bottom of the tobacco channel for receiving the tobacco from the spreader, while the lateral walls of the channel are formed by stationary guiding walls. This construction has the disadvantage, particularly in the case of high capacity machines, that the tobacco descending vertically from the tobacco spreader upon the paper strip cannot be carried along at once by the latter at the same speed, due to the smoothness of the paper, so that displacements of the tobacco take place on the paper and consequently it is not possible to obtain even filling of the cigarettes. Furthermore, the stationary lateral walls of the tobacco channel cause the tobacco to be pushed together in an undesirable manner, which likewise has an unfavourable effect on the filling of the cigarettes. Since the edges of the paper strip must be covered over by the lateral walls of the tobacco channel, it is also not possible to arrange the lateral walls at a relatively great distance apart.

The present invention now has for its object to obviate the aforesaid disadvantages of the devices known heretofore. The invention principally consists in the combination of means, which are provided on the tobacco channel and which carry in the feeding direction of the rod, the tobacco descending from the spreader, with a paper strip which is led below the spreader and which receives directly the tobacco carried along by the said means.

The means for carrying along the descending tobacco preferably consist of two endless guide bands or the like, which

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constitute the lateral walls of the tobacco channel and which are so guided that, at the inlet end of the paper strip, the bottom of the tobacco channel is constituted at least partly by the bands.

It is not absolutely essential for the paper strip to be led below the whole of the spreader, but it will suffice if the strip is fed at that point, as far as which the bottom of the tobacco channel is constituted entirely by the guide bands or other guiding means. If the guide bands or the like are so arranged as to constitute the bottom of the tobacco channel for a relatively long distance, it is thus possible to shorten the length of run of the paper strip considerably.

Two constructions of the invention are shown as examples in the accompanying drawing, wherein:

Figure 1 is a longitudinal section through the first construction showing the device for forming and guiding the tobacco rod.

Figure 2 is a plan of Figure 1.

Figures 3, 4 and 5 are cross-sections through Figure 2 taken along the lines 3-3, 4-4, 5-5.

Figure 6 shows on a larger scale a section through the device for the lateral guiding of the paper strip.

Figure 7 is a longitudinal section through the second construction of the invention.

Figure 8 is a plan thereof.

Figures 9, 10 and 11 are sections through Figure 8 taken along the lines 9-9, 10-10, and 11-11 on a larger scale.

In the drawing, *a* is the tobacco spreader which is constructed in any known manner and in which the tobacco is worked into a uniform fleece. On the underside of the spreader *a*, the paper strip *b*, running off a bobbin, is led below the spreader, the strip running over a guide plate *c* which is carried by rotatable links *d* in such a manner that it can be moved for example out of the position shown in full lines in Figure 1 into the dotted line position. Above the paper strip *b* running over the plate *c*, there are provided guide bands *e*, *f*, for the lateral guiding of the tobacco descending from the spreader *a*. Each of the said two bands is passed over two rollers *g*, *h* and *i*, *k*, respectively, the rollers *h*, *k* being set in rotation by a shaft *o* through the medium of helical wheels *m*, *n*, so that the bands run at the same speed in the direction of the arrows shown in Figure 2. Pressure rollers *q* and *q*¹, respectively, are provided for pressing each of the bands against the driving rollers *h*, *k*.

The axes of the rollers *h* and *k* are disposed vertically, while the axes of the rollers *g* and *i* lie at an angle such that the bands *e*, *f* running over them form, at the inlet end of the paper strip *b*, the shape of a fully or substantially closed V, as will be seen more particularly in Figure 3. On their way to the rollers *h*, *k*, the two bands are twisted, such that they are gradually erected (Figure 4) and, on encountering the rollers *h*, *k*, the bands finally lie vertical (Figure 5).

Accordingly, the arrangement described in the foregoing forms a channel moving in the direction of feed of the rod for receiving the tobacco descending from the spreader. Due to the special guiding of the bands *e*, *f*, the said tobacco channel, at the inlet end of the paper strip *b*, is bounded entirely or almost entirely by the bands *e*, *f*, the bottom of the channel being formed by the paper strip *b* only at the outlet end, due to the twisting of the bands *e*, *f*. Due to this arrangement, the tobacco descending into the tobacco channel at the inlet end lies exclusively or almost exclusively on the bands *e*, *f* which, due to their relatively rough surface, carry the tobacco along with them at the same speed, so that any unwanted pushing together of the rod to be formed is absolutely avoided. During the gradual moving apart of their lower edges, the bands *e*, *f* then transfer the tobacco to the paper strip *b* running under them whereupon the paper strip, with the tobacco rod lying upon it, runs into the inlet finger *r* of the forming device provided behind the rolls *h*, *k*. Consequently, according to the invention, the provision of a bridge for transferring the rod to the paper strip is not required, and any unwanted pushing together of the tobacco in the tobacco channel is avoided, so that it is possible to obtain a perfectly uniform rod.

For the purpose of laterally guiding the paper strip *b*, the edges of the strip preferably pass between adjustable guides, which, in the construction shown in Figure 6, consists of rectangularly adjustable rails *s*, *s*¹. For the purpose of supporting the bands *e*, *f* between the rolls *g*, *h* or *i*, *k*, rails *t* may be provided at the rear side of the bands (Figure 4). In Figures 1 and 2, these rails have been omitted for the sake of clearness. At the point of transit to the inlet finger *r*, scrapers *u*, *u*¹ are provided on either side of the tobacco channel, and have their free ends situated close to the periphery of the rollers *h*, *k*. The scrapers are preferably adjustable and are made as short as possible so as to afford little friction to the tobacco rod. The

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outlets of air blast nozzles v, v^1 are also provided between the periphery of the rolls h, k and the free ends of the scrapers u, u^1 . The air current issuing from the 5 nozzles serves to prevent short particles of tobacco escaping between the scrapers and the relatively rough surface of the bands e, f .

Of course, the invention is not limited 10 in its details to the construction shown but, on the contrary, the arrangement may also be such that the axes of the guide rollers provided for the guide bands and situated at the outlet point of the 15 paper strip, may be inclined somewhat to each other instead of being vertical, so that the lateral walls of the tobacco channel which are formed by the guide bands, approach each other towards the 20 top at the outlet end. The driving speed of the guide bands will be preferably such that the bands run at the same speed as the paper strip.

The second construction represented in 25 Figures 7 to 11 differs from the first-described construction substantially merely in the fact that the paper strip is not passed below the entire spreader, but only begins at the outlet end of the spreader. 30 In this construction, the bottom of the tobacco channel below the spreader is formed entirely by the guide bands. Like references are employed for those parts shown in Figures 7 to 11 which correspond 35 to the parts shown in Figures 1 to 6.

Differing from the construction shown in Figures 1 to 6, the paper strip b is here first supplied in the vicinity of the outlet 40 end of the rod trough. It runs over a table w adapted to swing about a pivot w^1 and carrying at its front end a roller w^2 over which the strip is passed. The parts 45 t^1 of the guides for the bands e and f with the table w , also swing the said parts also forming the lateral boundaries of the table w . The guides for the said two bands e, f are accordingly in two parts and comprise the aforementioned swinging 50 parts t^1 and the stationary parts t^2 . The downward swinging of the paper strip, like the downward movement of the table c with the paper strip in Figure 1, is effected for the purpose of a more convenient introduction of the paper and for 55 the purpose of obviating stoppages. The extension of the table w , which is stationary and on which the guide band rollers h and k are provided is shown at w^3 .

The rollers h and k are mounted in a stand x which also carries at the same 60 time the table w , and the spindles h^1 and k^1 of the said rollers carry at their lower ends bevel wheels y meshing with corresponding bevel wheels y^1 . The latter

are mounted on a shaft carrying at its end another bevel wheel y^2 engaging a bevel wheel z^1 mounted on the shaft z which is driven off the main drive. For 70 a large portion of their path, that is to say, at least as far as the roller w^2 , the feeding point of the paper strip, the bands e and f are inclined in such a way that they enclose a V-shaped space, as shown in Figure 9. Guiding is effected by 75 means of the guide pieces t^3 mounted on feet z^3 provided on the machine table A. The rollers g and i for guiding the bands when the latter go under the tobacco distributor a , are journaled in an extension 80 z^3 of the foremost foot z^3 .

Having now particularly described and ascertained the nature of our said invention and in what manner the same is to be performed, we declare that what we 85 claim is:—

1. A device for receiving and guiding the tobacco coming from a tobacco spreader in cigarette rod making machines, characterised by means provided on the 90 tobacco channel, which means carry the tobacco descending from the spreader along in the feeding direction of the rod, and deliver it directly on to the paper strip fed in known manner.

2. A device as claimed in claim 1, characterised in that the lateral walls of the tobacco channel consist of guide bands or the like which are guided in such a 95 manner that, at the inlet end of the paper strip, the bottom of the tobacco channel is also formed, at least partly, by the bands.

3. A device as claimed in claims 1 and 2, characterised in that the rolls or rollers guiding the bands at the inlet end of the 105 paper strip are disposed at an angle such that, at the inlet end, the bands together form a completely or substantially closed V which gradually opens towards the outlet end and exposes the paper strip 110 situated thereunder.

4. A device as claimed in claim 1, 2 or 3, characterised in that at the point of transition to the inlet finger of the forming device scrapers, preferably adjustable 115 are provided on either side of the tobacco channel, and have their free ends situated close to the conveying bands.

5. A device as claimed in claim 4, characterised in that the outlets of air 120 blast nozzles are arranged between the bands and the free ends of the scrapers.

6. The devices for receiving and guiding the tobacco coming from a tobacco spreader in cigarette rod making 125 machines, substantially as described or substantially as shown in the accompanying drawings.

Dated this day of

"UNIVERSELLE" CIGARETTEN-
MASCHINEN-FABRIK J. C.
MÜLLER & CO.

Per: Boulton, Wade & Tennant,
111/112, Hatton Garden, London, E.C. 1,
Chartered Patent Agents.

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Fig.1.

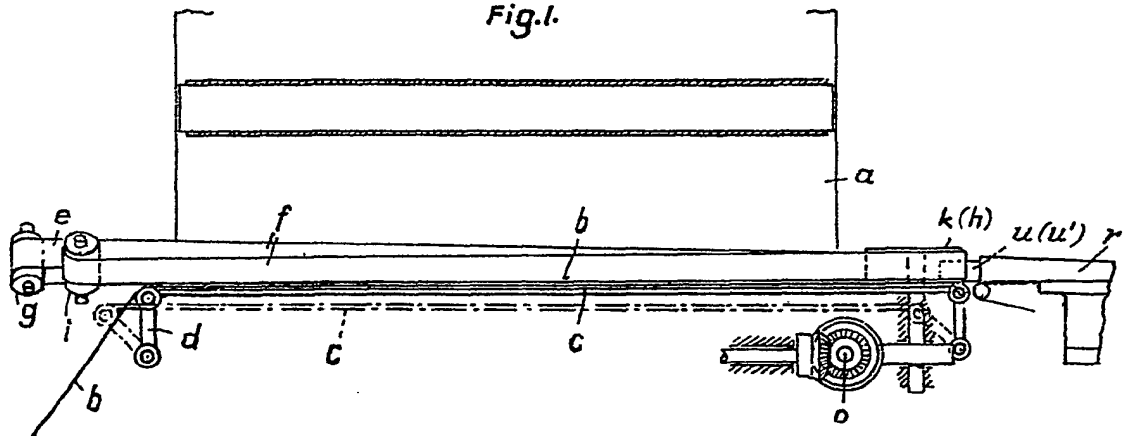


Fig.2.

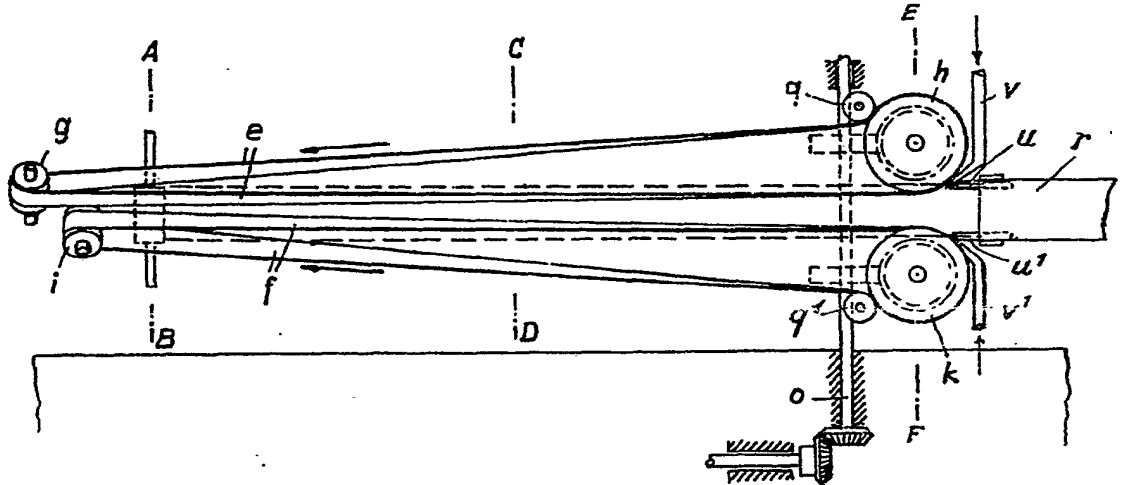


Fig.3.

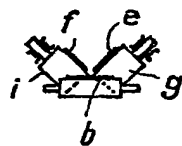


Fig.5.

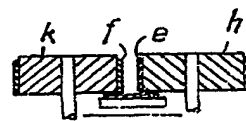


Fig.4.

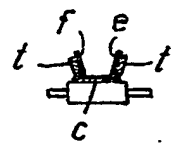
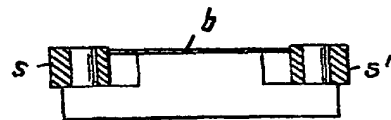


Fig.6.



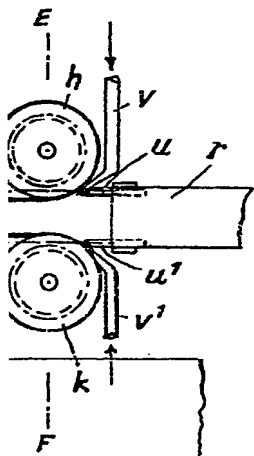
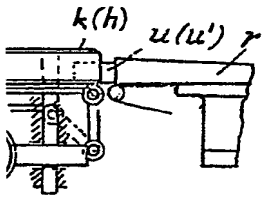


Fig. 9.

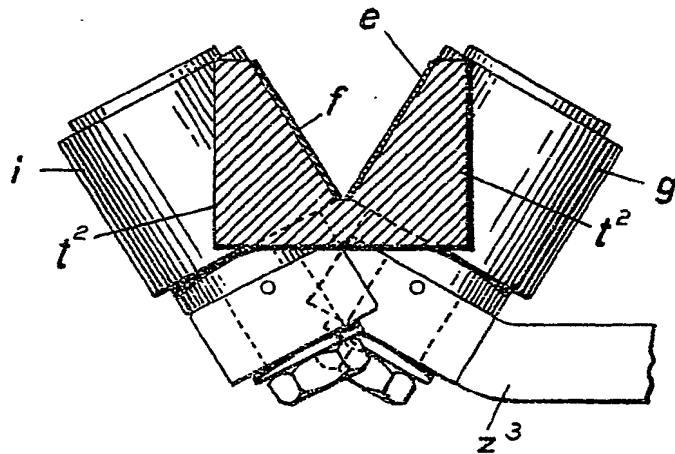


Fig. 10.

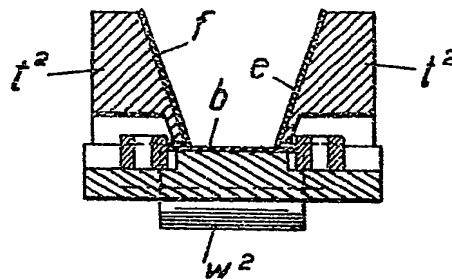
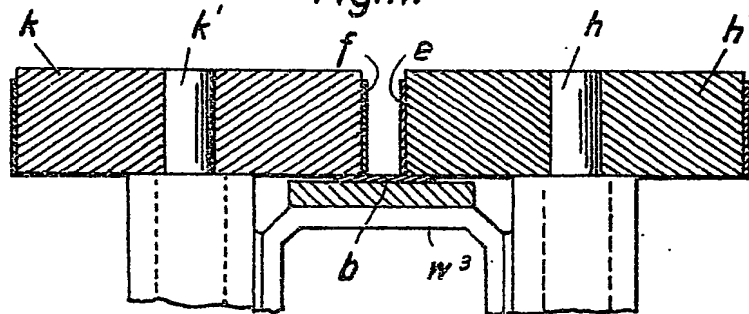
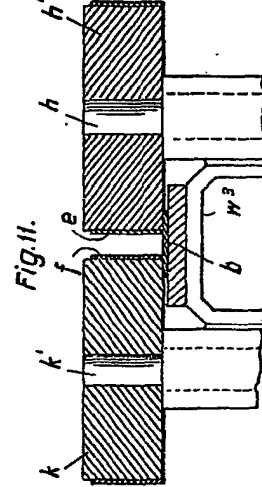
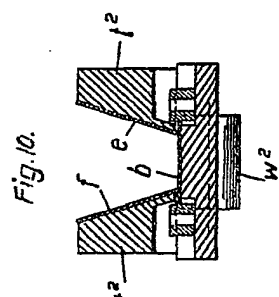
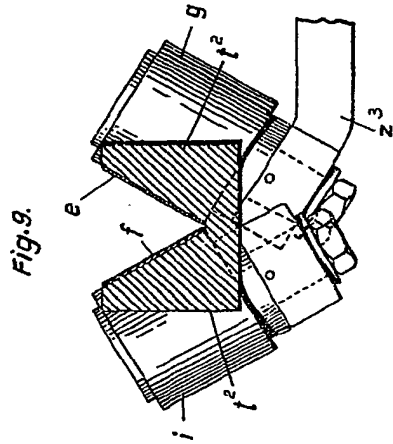
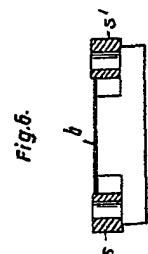
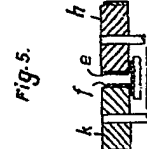
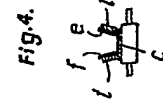
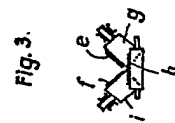
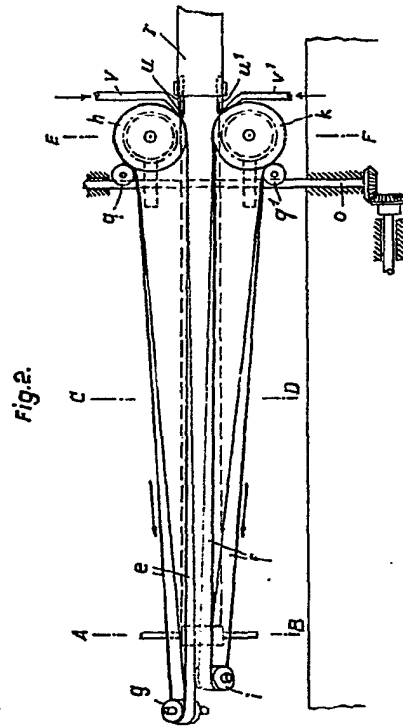
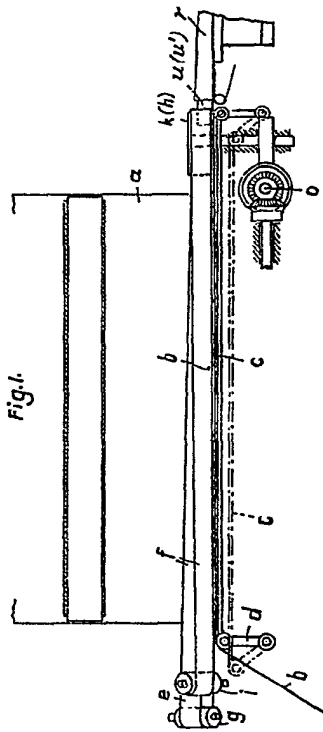


Fig. 11.





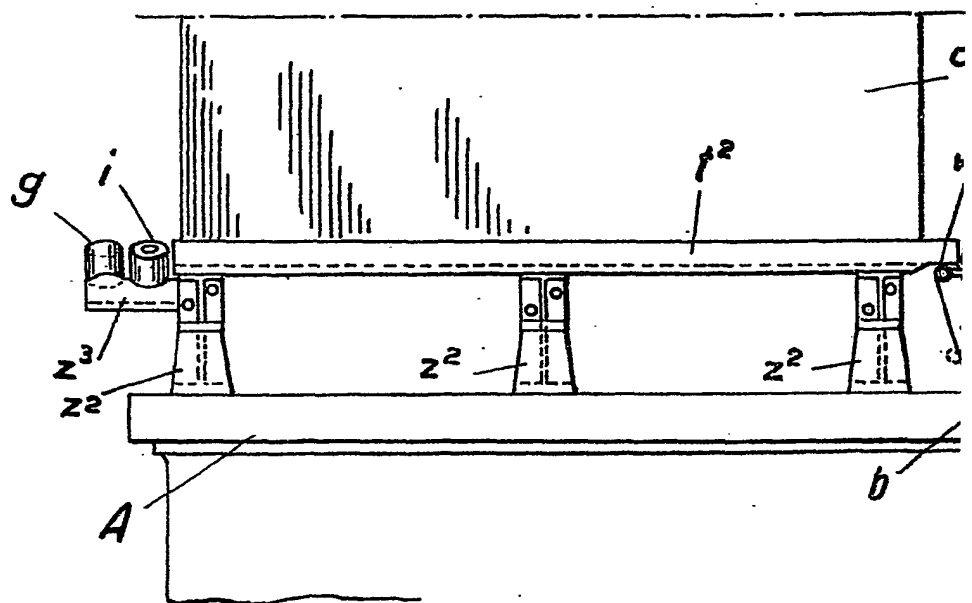
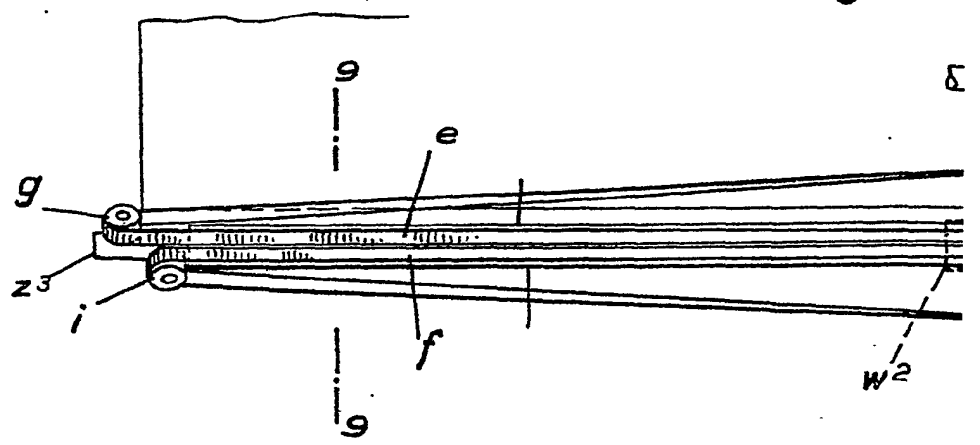
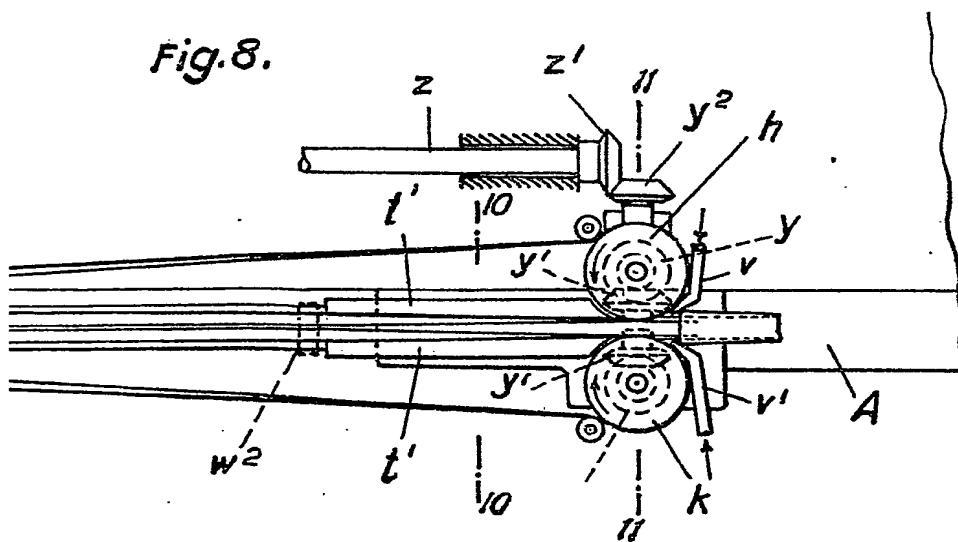
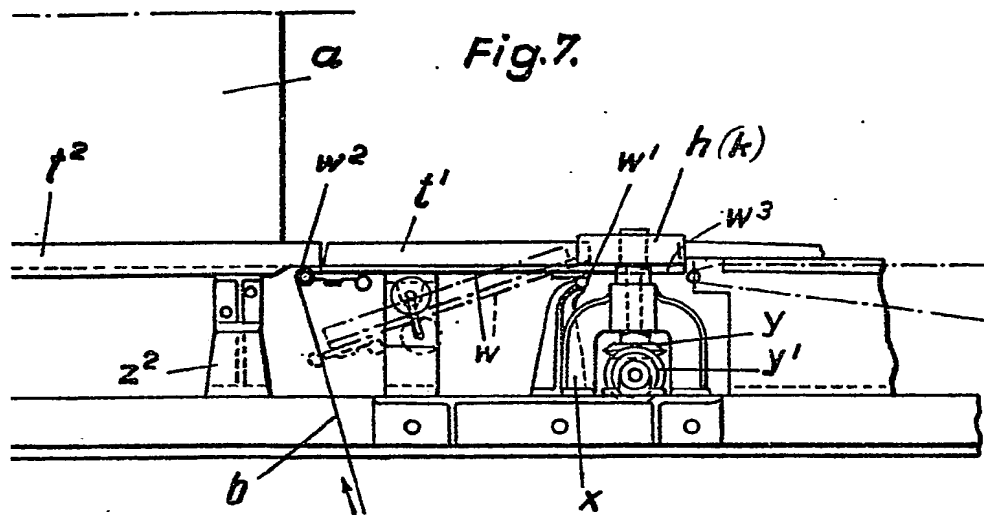
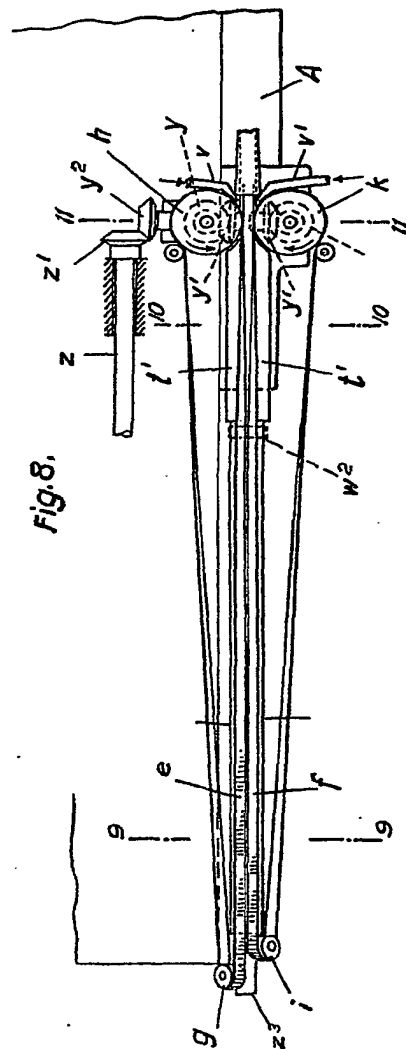
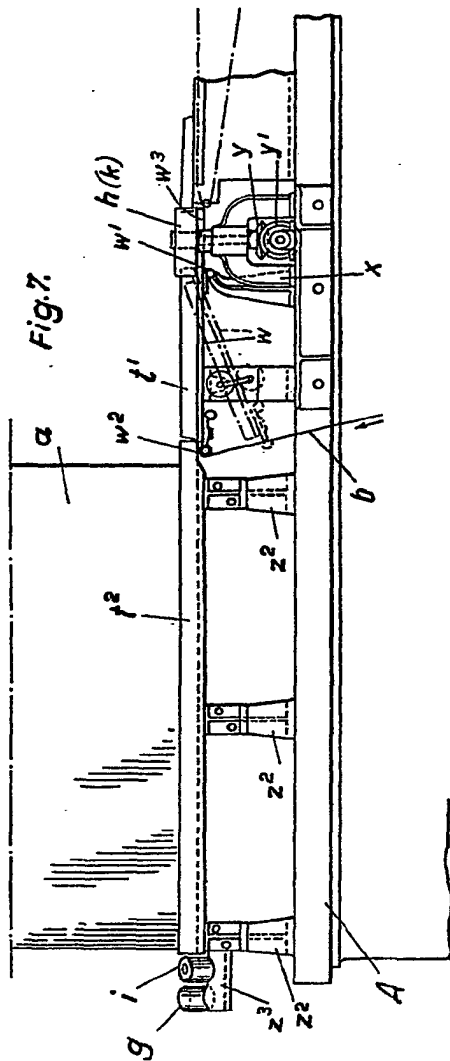


Fig. 8.







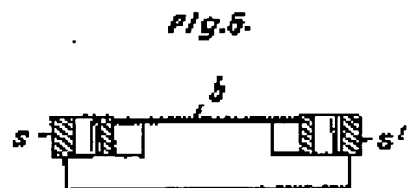
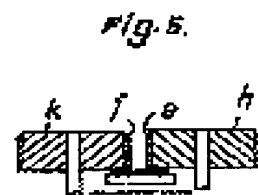
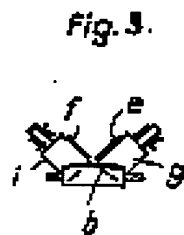
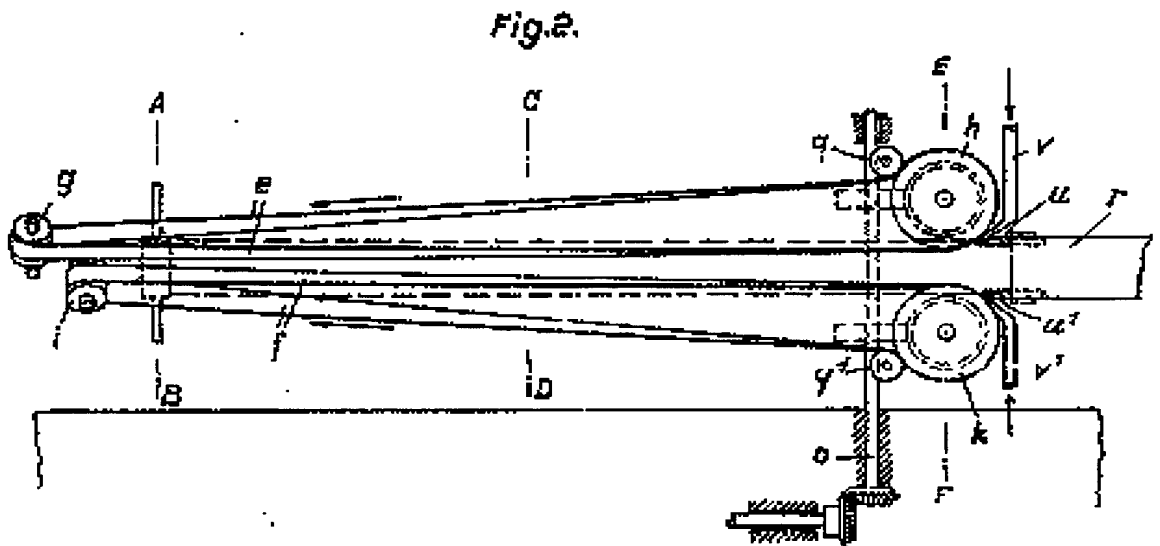
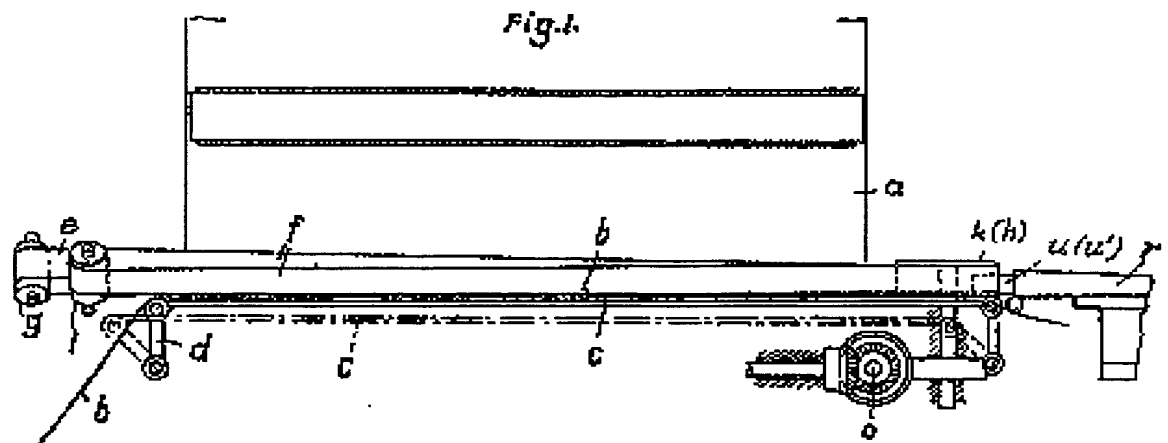


Fig. 9.

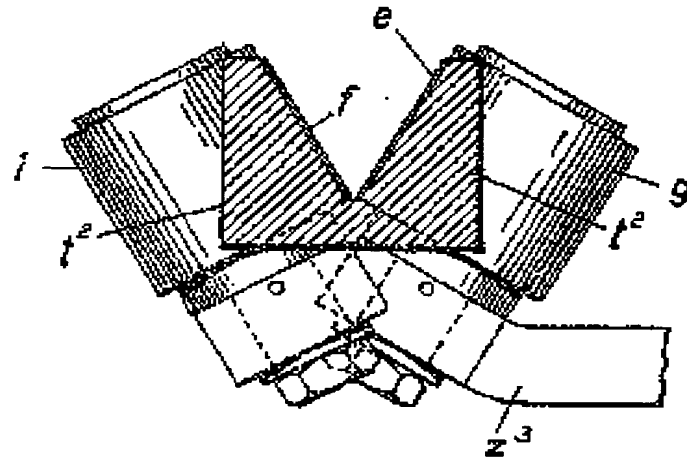


Fig. 10.

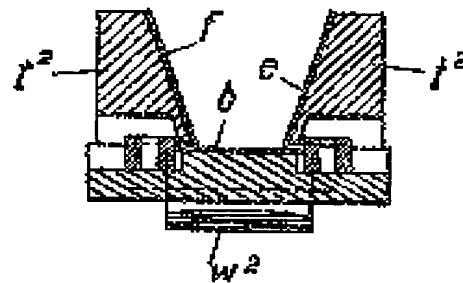
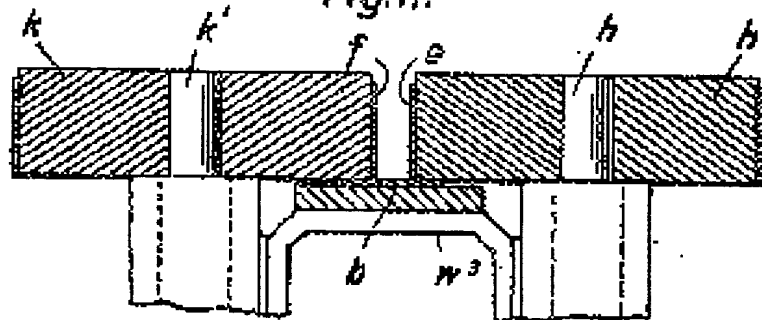


Fig. 11.



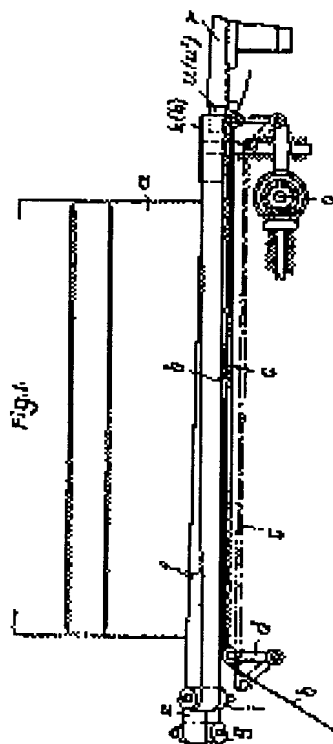


Fig. 1

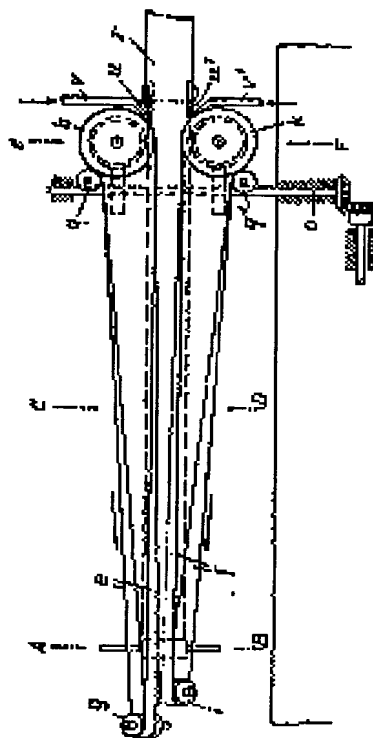


Fig. 2

Fig. 3



Fig. 4



Fig. 5

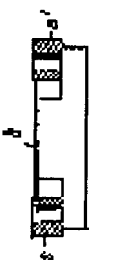


Fig. 6



Fig. 9

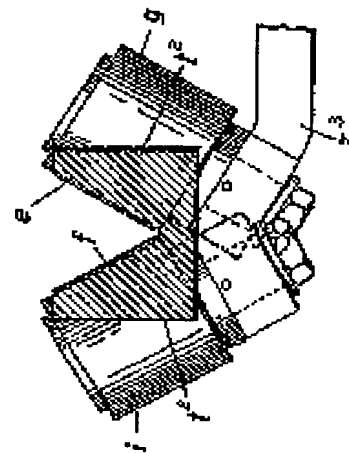
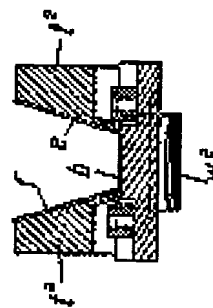
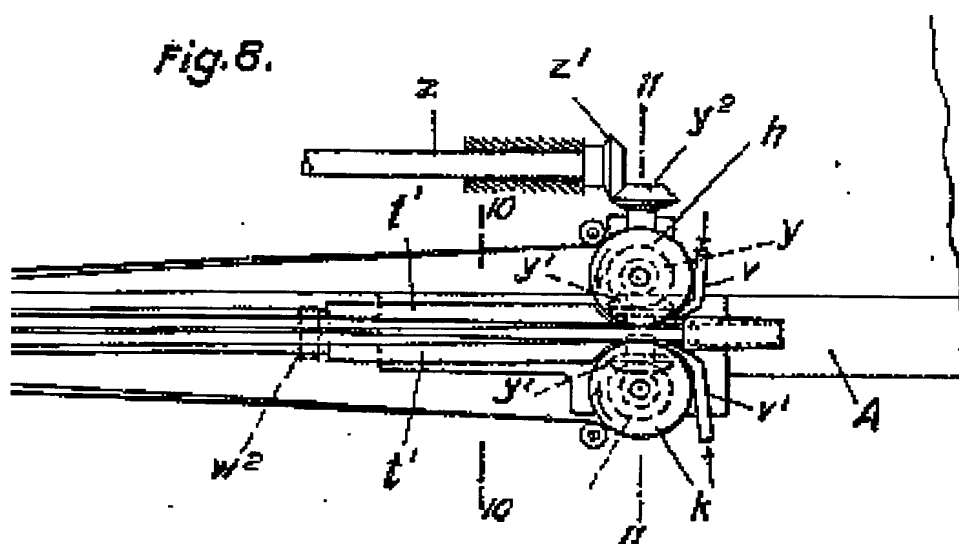
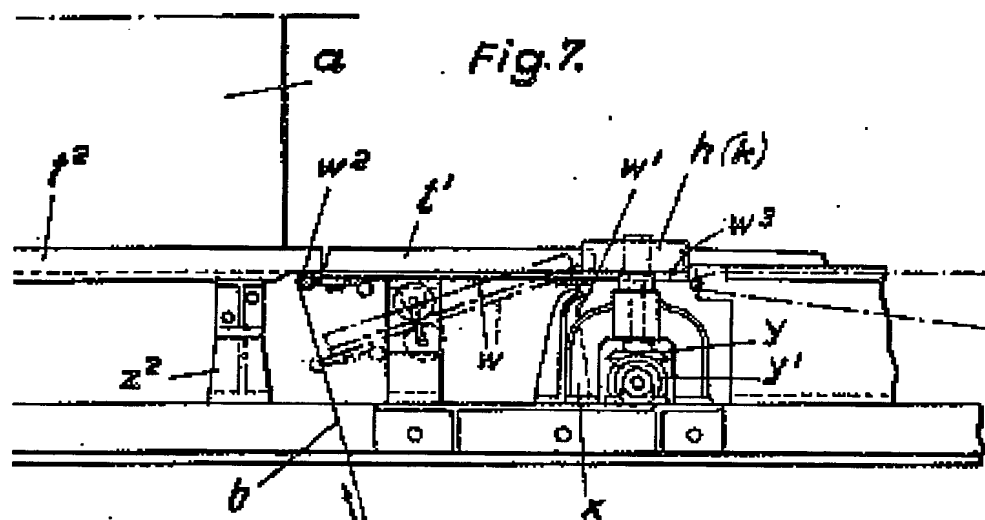


Fig. 10





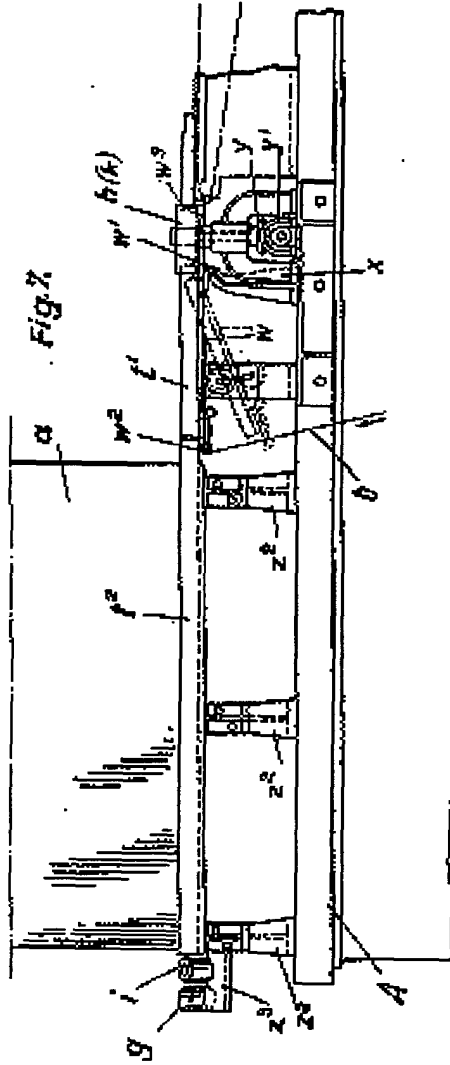


Fig. 7.

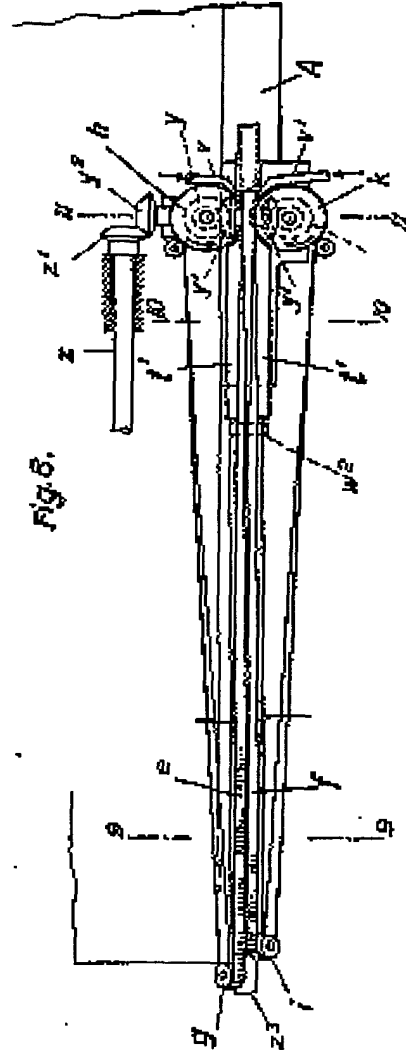


Fig. 8.